CLAIMS

Therefore, having thus described the invention, at least the following is claimed:

1   1.   A system for automatically discovering nodes on a network comprising:

2   an announcer logic configured to transmit a node address and a forward counter

3   associated with each known node in a list, to all nodes in the list having a static type, if

4   the forward counter is greater than zero;

5   a listener logic configured to receive an announcement packet, further configured

6   to add to the list of known nodes at least one new node, wherein the node address the

7   forward counter of the new node correspond to the announcement packet, wherein the

8   new node has a discovered type; and

9   a forwarder logic configured to transmit the node address and the forward counter

10   associated with the new node, to all known nodes in the list, if the forward counter is

11   greater than zero.

1   2.   The system of claim 1, wherein the announcer logic is further configured

2   to transmit the node address and the forward counter using a unicast address.

1   3.   The system of claim 1, wherein the forward counter is decremented upon

2   receipt.

1   4.   The system of claim 1, wherein the forward counter is decremented before

2   transmission.

1   5.   The system of claim 1, further comprising a network interface configured

2   to transmit and receive data on the network.

1   6.   The system of claim 5, wherein the announcer logic is further configured

2 to transmit the node address and the forward counter via the network interface.

1   7.   The system of claim 1, wherein the node address is an IP address.

1   8.   The system of claim 1, wherein the announcement packet is an ICMP

2 packet with type Echo Request.

1   9.   A method for automatically discovering nodes on a network comprising:

2   initializing a first known node list;

3   transmitting to all known nodes in the first list, a node address and a forward

4 counter associated with each known node, if the forward counter is greater than zero;

5   receiving from the network an announcement packet;

6   adding to a second list of discovered nodes at least one new discovered node,

7 where the discovered node comprises a node address and a forward counter

8 corresponding to the announcement packet; and

9   transmitting to all known nodes in the first list and all discovered nodes in the

10 second list, the node address and the forward counter associated with each known node, if

11 the forward counter is greater than zero.

1   10.   The method of claim 8, wherein transmitting onto the network to all

2 known nodes further comprises transmitting the network node address and the forward

3 counter using a unicast address.

24

1   11.   The method of claim 8, wherein transmitting onto the network to all

2   known nodes and all discovered nodes further comprises transmitting the node address

3   and the forward counter using a unicast address.

1   12.   The method of claim 8, wherein transmitting to all known nodes, a node

2   address and a forward counter associated with each known node further comprises

3   decrementing the forward counter before transmission.

1   13.   The method of claim 8, further comprising:

2   detecting an unreachable node;

3   deleting from the list, responsive to the detecting, each node with a discovery

4   source matching the unreachable node; and

5   announcing, to each node in the list, the deletion of each deleted node.

1   14.   The method of claim 12, further comprising:

2   receiving a deletion announcement, wherein the deletion announcement

3   comprises at least one node to be deleted; and

4   deleting from the list, responsive to the receiving, each node corresponding to the

5   node to be deleted.

1   15.   The method of claim 13, further comprising forwarding, to each node in

2   the list, the node to be deleted.

1   16.   A system for automatically discovering nodes on a network comprising:

2   a list of static nodes, wherein each static node comprises a node address and a

3   forward counter;

4   an announcer logic configured to transmit the node address and the forward

5   counter associated with each static node in the list, if the forward counter is greater than

6   zero, to all static nodes;

7   a list of discovered nodes, where each discovered node comprises a node address

8   and a forward counter;

9   a listener logic configured to receive an announcement packet, where the

10   announcement packet comprises at least one node address and at least one forward

11   counter, further configured to add to the list of discovered nodes at least one new

12   discovered node corresponding to the node address and forward of the announcement

13   packet; and

14   a forwarder logic configured to transmit via the network interface the node

15   address and the forward counter associated with the new discovered node, if the forward

16   counter is greater than zero, to all known nodes and to all discovered nodes, wherein the

17   forward counter is decremented before transmission.

1   17.   The system of claim 16, wherein the announcer logic is further configured

2   to transmit the node address and the forward counter using a unicast address.

1   18.   The system of claim 16, wherein the forwarder logic is further configured

2   to transmit the node address and the forward counter using a unicast address.

1   19.   The system of claim 16, wherein the forward counter is decremented upon

2   receipt.

1   20.   The system of claim 16, wherein the forward counter is decremented

2   before transmission.

1   21.   The system of claim 16, further comprising a network interface configured

2   to transmit and receive data on the network.

1   22.   The system of claim 21, wherein the announcer logic is further configured

2   to transmit the node address and the forward counter via the network interface.

1   23.   The system of claim 21, wherein the forwarder logic is further configured

2   to transmit the node address and the forward counter via the network interface.

1   24.   The system of claim 21, wherein the listener logic is further configured to

2   receive the announcement packet via the network interface.

1   25.   The system of claim 16, wherein the node address is an IP address.

1   26.   The system of claim 16, wherein the announcement packet is an ICMP

2   packet with type Echo Request.

1